

The surveillance programme for Chronic Wasting Disease (CWD) in wild and captive cervids in Norway 2015



Surveillance programmes for terrestrial and aquatic animals in Norway

Annual report 2015

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ISSN 1894-5678

Title:

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Date: 2016-05-24

Front page photo: Colourbox

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Example of citation:

Sviland S, Vikøren T, Tarpai A, Benestad SL. The surveillance programme for Chronic Wasting Disease (CWD) in wild and captive cervids in Norway 2015. *Surveillance programmes for terrestrial and aquatic animals in Norway. Annual report 2015*. Oslo: Norwegian Veterinary Institute; 2016.

The surveillance programme for Chronic Wasting Disease (CWD) in wild and captive cervids in Norway 2015

Ståle Sviland, Turid Vikøren, Attila Tarpai, Sylvie Lafond Benestad

Chronic wasting disease (CWD) was not detected in any of the 19 animals tested in 2015.

Introduction

CWD is a transmissible spongiform encephalopathy (TSE) of cervids (1, 2, 3). A few species of the family *Cervidae* are known to be naturally susceptible to the disease: mule deer (*Odocoileus hemionus*), white-tailed deer (*O. virginianus*), Rocky Mountain elk (*Cervus elaphus nelsoni*), and moose (*Alces alces shirasi*). Chronic wasting disease occurs in free-ranging and captive cervids in North America, and has also been diagnosed in captive deer in South Korea in connection with deer imported from Canada.

Four cervid species are prevalent in natural populations in Norway: moose (*Alces alces*), red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), and reindeer (*Rangifer tarandus*). Red deer predominate along the west coast, whereas moose and roe deer mainly inhabit other areas of the country. The wild reindeer live in dispersed populations in separate high mountain areas in southern Norway. The number officially hunted in 2014 was: 31,100 moose, 33,700 red deer, 26,500 roe deer, and 6,500 wild reindeer. Additionally, Norway has a semi-domestic reindeer population, mainly kept in the northern parts of the country, presently counting 211,600 animals. There are approximately 90 deer farms in Norway, and 85% of them keep red deer, whereas the rest keep fallow deer (*Dama dama*).

Norway has large free-ranging populations of various cervids, a number of them grazing in regions where scrapie is detected, and a passive surveillance programme for CWD in Norwegian wild and captive cervids has been running from 2003. In addition, samples from slaughtered semi-domestic reindeer from several regions in the country have been tested for CWD. Norway performed an EC survey for CWD in cervids in 2006 and 2007 according to Commission decision 2007/182/EC, in which 700 red deer were examined. No positive animals have so far been detected.*

Aim

The aim of the programme is to detect the possible occurrence of CWD in the Norwegian cervid population.

Material and methods

Material

Wild cervids older than 18 months necropsied at the Norwegian Veterinary Institute were examined for CWD. Additionally, captive deer older than 18 months that died or were euthanized due to disease or injuries were sampled in the field. The number and species analysed for CWD in 2015 are given in Table 1.

Methods

A rapid test (TeSeE® Bio-Rad) was used to screen brain samples for detection of the PrP^{CWD}. For two samples the test used was immunohistochemistry against PrPres (resistant prion protein). All the samples were analysed at the Norwegian Veterinary Institute, which is the Norwegian Reference Laboratory for animal TSEs.

*In April 2016 the Norwegian Veterinary Institute diagnosed CWD in a wild reindeer from Sogn og Fjordane county.

Results

None of the 19 samples analysed in 2015 tested positive for CWD in the rapid test (Table 1).

The three tested captive deer were exclusively examined for CWD (TSE surveillance program) whereas the remaining 16 animals represent free-ranging cervids received at the Norwegian Veterinary Institute for routine necropsy (Table 1).

Table 1. The number of cervids tested in the Norwegian surveillance programme for chronic wasting disease (CWD) 2015, distributed by reason for submission.

Species	Routine necropsy		TSE surveillance programme				Total
	Captive	Wild	Wild			Captive	
			Hunted	Traffic killed	Found dead or culled	Found dead or culled	
Moose	0	4	0	0	0	0	4
Fallow deer	0	0	0	0	0	0	0
Red deer	0	1	0	0	0	3	4
Reindeer	0	3	0	0	0	0	3
Roe deer	0	8	0	0	0	0	8
Total	0	16	0	0	0	3	19

Discussion

No animals were positive for CWD in 2015. The number of cervids tested was very small.

Among the Norwegian cervid species, a higher risk for CWD can be assumed for red deer and moose since these species are among those known to be naturally susceptible to the disease (1 - 4). Roe deer and reindeer have so far not been found naturally infected with CWD, however experimental studies have shown that reindeer is susceptible to the disease (5)*.

References

1. Williams ES, Young S. Spongiform encephalopathies in Cervidae. Rev Sci Tech Off Int Epiz 1992; 11: 551-567.
2. Williams ES. Chronic Wasting Disease. Vet Pathol 2005; 42: 530-49.
3. Baeten LA, Powers BE, Jewell JE, Spraker TR, Miller MW. A natural case of Chronic Wasting Disease in a free-ranging moose (*Alces alces shirasi*). J Wildl Dis 2007; 43: 309-314.
4. Kreeger TJ, Montgomery DL, Jewell JE, Schultz W, Williams ES. Oral transmission of chronic wasting disease in captive Shira's moose. J Wildl Dis 2006; 42: 640-5.
5. Mitchell GB, Sigurdson CJ, O'Rourke KI, Algire J, Harrington NP, Walther I, Spraker TR, Balachandran A. 2012. Experimental oral transmission of chronic wasting disease to reindeer (*Rangifer tarandus tarandus*). PLoS One 7(6): e39055.

*In April 2016 the Norwegian Veterinary Institute diagnosed CWD in a wild reindeer from Sogn og Fjordane county

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